

as indicated by the numerical value shown through the window 3016 of the indicator wheel 3026.

[0647] The plurality of conduits 3042 may include conduits of varying diameter. That is, some conduits may have a smaller diameter such that actuation from the plunger 3012 against the tube 3040 would cause flow to be impeded more readily than a conduit with a larger diameter. In some embodiments of the present disclosure, the conduits of the plurality of conduits 3042 each has a diameter configured sufficiently so that the plurality of conduits 3042 has a linearized response of fluid flow through the tube 3040 vis-à-vis the indicator label 3024 of the indicator wheel 3026 shown through the window 3016.

[0648] FIGS. 151-152 illustrate an exploded view of the infusion apparatus 3000 of FIG. 148 in accordance with an embodiment of the present disclosure. The plunger 3012 is shown including the complementary threads 3048. The knob 3002 can receive the complementary threads 3048 such that actuation of the knob 3002 causes the plunger 3012 to actuate toward and away from the channel 3014. The knob 3002 rotates around the central axis 3052 as it is actuated by a user. Because of internal threads within knob 3002, the complementary threads 3048 cooperate with the internal threads to actuate into and out of the knob 3002.

[0649] The knob 3002 includes a knob gear 3044, which is positioned within slot 3046. The slot 3046 secures the knob gear 3044 within the housing 3004 such that the knob 3002 can rotate freely.

[0650] As can be seen, the knob gear 3044 rotates while engaged with first end 3056 at first end 3056 of a shaft 3050. The shaft 3050 rotates in response to user actuation of the knob 3002 and thereby rotates a complementary threads 3048 at second end 3060. The complementary threads 3048 engages with indicator-wheel gear 3062 of the indicator wheel 3026 to rotate the knob 3002 in accordance with the position of the knob 3002. Because the rotational position of the knob 3002 determines the position of the plunger 3012, the indication by the indicator-wheel gear 3062 corresponds to the position of the plunger 3012.

[0651] FIG. 153 illustrates the infusion apparatus 3000 of FIG. 148 with the back cover 3080 removed. The engagement between the first gear 3054 of the shaft 3050 with the knob gear 3044 is shown. FIGS. 154-155 illustrates the infusion apparatus 3000 of FIG. 148 with the back cover 3080 and knob 3002 removed. The shaft 3050 rotates within the housing 3004. FIG. 156 illustrates various parts of the infusion apparatus 3000 of FIG. 148 to illustrate actuation of the indicator wheel 3026. As previously mentioned, when the knob 3002 is rotated by a user, the knob gear 3044 also rotates, which in turn rotates the shaft 3050. Rotation of the shaft 3050 causes the second gear 3058 to rotate, which in turn, rotates the indicator-wheel gear 3062 because the second gear 3058 engages with the indicator-wheel gear 3062. The rotational angle of the indicator wheel 3026 indicates which indicator label 3024 is shown. FIG. 157 illustrates the knob 3002 of the infusion apparatus 3000 of FIG. 148 and shows the internal threaded region 3064, which engages with the complementary threads 3048 of the plunger 3012.

[0652] FIG. 158 illustrates an embodiment of an infusion apparatus 3000 in accordance with another embodiment of the present disclosure. The infusion apparatus 3000 includes a support member 3068 which is coupled between the housing 3004 and a drip chamber seat 3006. The drip

chamber seat 3006 facilitates coupling of a top cap 3038 of a drip chamber 3036. FIG. 159 shows the bottom of the infusion apparatus 3000 to clearly show the first receiving surface 3028 and second receiving surface 3030 which facilitates guiding of the tube 3040 into the channel 3014.

[0653] FIG. 160 illustrates a cross-sectional view of the infusion apparatus 3000 of FIGS. 158-159 to illustrate a cross section of the top cap coupler 3066. recess 3070 are shown which can be used to secure a top cap coupler 3066. FIG. 161 illustrates a perspective view of the infusion apparatus 3000 of FIGS. 158-159 prior to a drip chamber 3036 being inserted into the infusion apparatus 3000 and FIG. 162 illustrates the perspective view of the infusion apparatus 3000 of FIGS. 158-159 after the drip chamber 3036 is inserted into the infusion apparatus 3000. FIG. 163 illustrates a cross-sectional view of the infusion apparatus 3000 of FIGS. 158-159 to illustrate a cross section of the top cap coupler 3066 when the drip chamber 3036 is secured within the top cap coupler 3066. Arms 3078 of the top cap coupler 3066 are received within recess 3070 which secures the drip chamber 3036 within the infusion apparatus 3000. The arms 3078 can be elastic thereby forming a springing action to facilitate keeping the arms 3078 secured within the recess 3070 as a result of the resilience of the arms 3078.

[0654] FIG. 164 illustrates the back of the infusion apparatus 3000 of FIGS. 158-159 with the back covered removed. The sled 3072 can be seen, which is mounted within a threaded shaft 3074. Because the threaded shaft 3074 rotates with rotation of the infusion apparatus 3000, the threaded shaft 3074 rotates with the knob 3002 and hence actuates the sled 3072. Internal to the sled 3072 is sled complementary threads 3076 that receives the threaded shaft 3074. FIG. 165 illustrates portions of the infusion apparatus 3000 of FIGS. 158-159 to illustrate operation of a sled 3072 vis-à-vis a back cover 3080. As the sled 3072 actuates, it also actuates the plunger 3012 toward or away from the tube 3040 because the back cover 3080 guides the actuation of the sled 3072. FIG. 166 illustrates portions of the infusion apparatus 3000 of FIGS. 158-159 to illustrate operation of the sled 3072. The sled 3072 includes internal threads that engage with threads of the shaft 3050 such that rotation of the shaft 3050 move the sled 3072 toward and away from the knob 3002 depending on the direction of rotation of the knob 3002.

[0655] FIGS. 167-168 illustrate an embodiment of an infusion apparatus 3000 in accordance with another embodiment of the present disclosure. The infusion apparatus 3000 is similar to the infusion apparatus 3001 of FIGS. 148-150, but does not include an indicator wheel 3026.

[0656] FIG. 169 illustrates a plunger 3012 and knob 3002 disposed within the housing 3004 of the infusion apparatus 3000 of FIGS. 167-168 which shows a disc 3082, instead of a gear to secure the knob 3002 within the housing 3004. FIG. 170 illustrates the plunger 3012 and knob 3002 of the infusion apparatus 3000. FIG. 171 illustrates the back of the infusion apparatus 3000 of FIGS. 167-168 with the back cover 3080 removed and FIG. 172 illustrates the back of the infusion apparatus 3000 of FIGS. 167-168 with the back cover 3080 and knob 3002 removed. FIG. 173 illustrates the knob 3002 of the infusion apparatus 3000 of FIGS. 167-168.

[0657] Various alternatives and modifications can be devised by those skilled in the art without departing from the disclosure. Accordingly, the present disclosure is intended to embrace all such alternatives, modifications and variances.